

## ABSTRACT

DC-DC converters have high side and rectifier circuits, and output capacitor. High side circuit connects between input voltage and output voltage, and has primary winding and auxiliary section  
5 that operate transformer properly. Auxiliary may have switches or combination of switches and capacitors. High side circuit converts electrical into magnetic energy through transformer primary, which is then transferred to output through rectifier circuit. It also transfers energy directly to output voltage. Converters have high efficiency, fast dynamic response and high current output. Converters can have large duty cycle and large input voltage and output voltage conversion ratio.  
10 High side circuit can be half-bridge, full-bridge or forward converter. Rectifier uses inductors on either side of the secondary, and diodes or synchronous rectifiers, to rectify output voltage. Multi-phase interleaved circuits utilize shared switches to reduce size. High side circuit can utilize resonant tank to decrease switching losses in auxiliary.